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Supporting Enterprise Networks and Operating Environments

SUPPORT

JULY 1995

Volume 3, Number 7

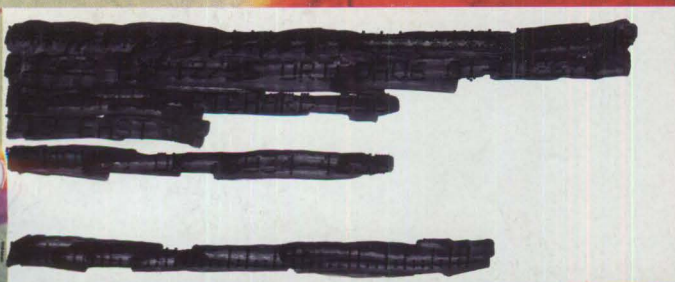
**THE YEAR 2000: NOT JUST
AN APPLICATIONS ISSUE**

**TCP/IP ADDRESSING TRAPS
AND PITFALLS**

**WINDOWS 95 vs. OS/2:
THE GREAT DEBATE**

**THE FUTURE OF VM:
AN INTERVIEW WITH
MAINFRAME STRATEGIST
STEVE DRILL**

*Opening
New Channels
of Online
Communications:
NaSCOM and
the Internet*



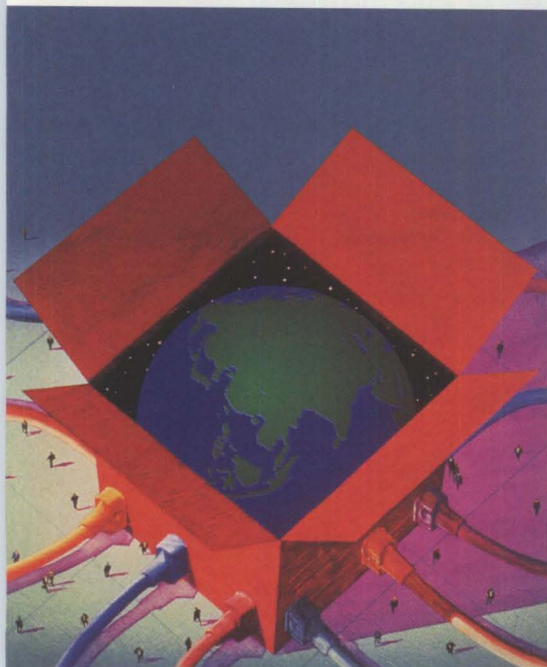


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The Internet opens up new communications channels for NaSPA members with NaSCOM's full-time leased-line connection. Members can now TELNET and FTP to/from NaSCOM.

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NaSPA Technical Support (ISSN 1079-3135) is published monthly by Technical Enterprises Inc., 4811 S. 76th St., Suite 210, Milwaukee, WI 53220-4362. Second-class postage paid at Milwaukee, WI. POSTMASTER: Send address changes to **NaSPA Technical Support**, 4811 S. 76th St., Suite 210, Milwaukee, WI 53220-4362.

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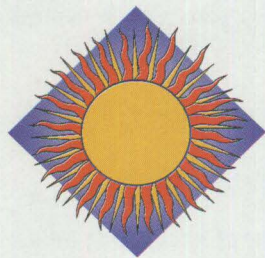


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FROM THE PRESIDENT



Dear NaSPA member;

The weather's not the only thing that's hot! NaSPA has implemented three new services to assist in your career growth:

■ **Full Internet connectivity to FTP and TELNET to/from NaSCOM** — Now not only can you send and receive Internet email and peruse the many online forums, you can also FTP and TELNET other sites via NaSCOM, and TELNET and FTP

NaSCOM from remote sites. NaSPA's IP address is NASCOM.COM or 199.201.96.21. For more information, see **NaSPA News** on page 7. Stay tuned for information on NaSPA's World-Wide-Web page contest!

■ **NaSCOM upgrades** — In addition to full Internet connectivity, NaSCOM has undergone some additional updates in the last several months. We currently have 12 CDs online. This includes the recently released NaSPA Version 2.0 CD-ROM which contains all of the articles published in NaSPA publications since 1987 as well as public domain programs and other useful software programs.

■ **A new credit card** — NaSPA has signed a contract with First Western Bankcorp of Pennsylvania to provide a NaSPA Visa card to our members. Stay tuned for more details.

Due to the success of our member benefits we've been able to lower your dues 40 percent in the last 12 months. These benefits generate funds which defray the cost of your membership and enable NaSPA to continue providing new services.

DEMOS ON DEMAND

Last month we highlighted a new service, Demos on Demand. Well, I'm pleased to say that it is an overwhelming success. We currently have 14 programs online and ready to be downloaded. These demos consist of both proprietary programs as well as storyboards. The demos range from system tools for the mainframe to communications software. Logon to NaSCOM and select the "Must Haves" menu or letter "D". The left side of the menu is home to several utility programs that will help you maximize your time on NaSCOM; the right side lists the products available for download. Demos on Demand is an invaluable service because it puts new products in the hands of users who can test and evaluate them on their own time and terms. For a listing of the products available on Demos on Demand, see page 40.

If you do not have download capability and would like to evaluate a product available on Demos on Demand, email market@nascom.com or call Jerry Seefeldt at (414) 423-2420 Ext. 110 and the demo program will be sent to you.

Take advantage of the many benefits your NaSPA membership provides. If you have any comments or suggestions, please let us know. We are here for you.

Sincerely,

Scott Sherer

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BPA audit applied for December 1994.

4811 S. 76th St., Suite 210

Milwaukee, WI 53220-4362

(414) 423-2420 FAX: (414) 423-2433

JULY 1995 VOLUME 3, NUMBER 7

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BY ROBERT SIMPSON

UNIX, Oracle and OS/2

An Unlikely Combination?

Part V: Output

*Using Oracle's SQL*Plus to execute a script produces copyright and startup messages that often cause important information to scroll off the screen. However, a simple C program can clean up this output and generate reports.*

This article concludes this series on managing UNIX and Oracle using OS/2. The first four parts presented an approach for managing UNIX systems and the Oracle DBMS with OS/2. This article will present a C language program which cleans up the output and allows generating and printing of reports using the approach presented in the first four parts.

PURPOSE

When Oracle's SQL*Plus is used to execute a script, it displays copyright and startup messages. Other utilities also produce unneeded messages that just clutter the output from the script, often causing more relevant information to scroll off the screen. A program can be used to remove the extraneous text.

A program can be designed to simply read data from the standard input file (stdin) and write it to the standard output file (stdout) while performing a specific function. Programs which operate in this manner are called "filters", because they filter the data as it passes through the program. We want our filter program to somehow eliminate the unnecessary output.

We'll do this by adding some code to the scripts to send special flag characters to tell the program when to start and stop echoing the output. Elimination of text can be controlled by changing where the flag characters are sent from the script. This approach greatly simplifies the logic of the filter program and, as we'll see in the examples, allows more flexibility.

THE PROGRAM

Figure 1 shows the source for the C program, FOF.C. FOF stands for Formatted Output Filter. To create the program for OS/2, you will need a C or C++ compiler for OS/2. The program was created and tested using the C Set ++ compiler, but the program is generic enough that just about any C or C++ compiler should do.

Since we don't want to take input from the keyboard, the program will be executed with redirection of the standard input file. The input could be redirected from a file using "<" or from another command using the pipe character "|". Output could also be redirected using ">" if we want the output to go to a file instead of the screen.

MODIFYING SQLP.CMD

The REXX command procedure which executes SQL*Plus, either directly or indirectly through a UNIX shell script, needs to be modified to use the FOF program. The new SQLP.CMD in Figure 2 combines the functions of BINO.CMD (Figure 3 in Part II) and the old SQLP.CMD using SQL*Plus for UNIX (Figure 4 in Part III). The SQLP.CMD which uses SQL*Plus for OS/2 (Figure 3 in Part III) could be modified in a similar manner if that is the one you are using.

When Oracle's SQL*Plus is used to execute a script, it displays copyright and startup messages that just clutter the output from the script, often causing more relevant information to scroll off the screen.

The first modification is to add:

```
tempdir = value('TMP', 'OS2ENVIRONMENT')
if tempdir \= '' then tempdir = tempdir || '\ '
call value 'LAST_SCRIPT', script, 'OS2ENVIRONMENT'
```

These lines get the path for a temporary directory and save the name of the script being executed. The name of the temporary directory is specified by setting the "TMP" environment variable, which can be done automatically by adding a line such as "SET TMP=d:\TEMP" to CONFIG.SYS, if it is not already there. You should create the specified directory on your hard disk with an OS/2 command like "MKDIR d:\TEMP".

The second modification is to redirect the output from the "echo" command and from executing our SQL*Plus scripts to a file using:

```
'>' tempdir || script'.uo'
```

This appears the first time using a single ">" to create or overwrite the file and the second time using a double

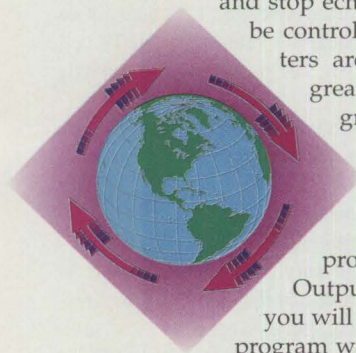


Figure 1: FOF.C - Source Code for Formatted Output Filter

The purpose of this program is to allow formatting output which is produced by UNIX and Oracle. Special codes can be added to the UNIX or Oracle scripts using /bin/echo which this program can then act upon.

The codes for screen or printed output are:

```
\033\033    Esc Esc    Start or stop displaying output
\033\014    Esc FF     Stop displaying output until next form feed
```

Additional codes for HP LaserJets include:

```
\033E      Esc E      Start or stop displaying output and reset
                        printer - to be used only at the beginning or
                        end of output directed to an HP LaserJet
                        printer. Resetting the printer at the
                        beginning prevents fonts, orientation and
                        other printer commands in previous output from
                        affecting your output. Resetting the printer at
                        the end prevents printer commands in your
                        output from affecting the next person's output.
                        (This is just courteous printer etiquette!)
```

```
\033&110    Landscape orientation
```

Any other HP LaserJet PCL printer commands may also be used.
*/

```
#include <stdio.h>
```

```
main(int argc, char *argv[], char *envp[])
```

```
{
    int Copying = 0, Discarding = 0, foundEscE = 0;
    int ch1, ch2, Esc = '\x1B', FormFeed = '\x0C';
```

```
/* Read the first character */
```

```
discard_two:
    ch1 = getchar();
```

```
/* Loop reading characters from stdin */
```

```
while ( ch1 != EOF ) {
```

```
/* Get one extra character from input */
```

```
    ch2 = getchar();
```

```
/* Check for Esc E or Esc Esc */
```

```
    if ( ch1 == Esc && ( ch2 == 'E' || ch2 == Esc ) ) {
        /* Determine if this is the first or second one of a pair */
        if ( Copying ) {                /* second Esc E */
            /* Stop copying characters */
            Copying = 0;
        }
    }
```

```
    } else {                            /* first Esc E */
        /* Start copying characters */
        Copying = 1;
        Discarding = 0;
        /* If it's an Esc E, copy the Esc E itself */
        if ( ch2 == 'E' ) {
            foundEscE = 1;
            putchar( ch1 );
            putchar( ch2 );
        } /* endif */
    } /* endif */
```

```
/* Go read next character from input */
goto discard_two;
} /* endif */
```

```
/* Check for Esc FormFeed */
```

```
if ( ch1 == Esc && ch2 == FormFeed ) {
    /* Turn on "copying" flag, if not already on */
    Copying = 1;
    /* Discard all characters up to and including form feed */
    Discarding = 1;
    /* Go read next character from input */
    goto discard_two;
} /* endif */
```

```
/* Check for FormFeed without Esc */
```

```
if ( Discarding && ch1 == FormFeed ) {
    /* Start copying again */
    Discarding = 0;
    /* but discard the form feed */
    goto discard_one;
} /* endif */
```

```
/* Copy characters from stdin to stdout */
```

```
if ( Copying && ! Discarding ) {
    putchar( ch1 );
} /* endif */
```

```
/* Save the character for the next iteration */
```

```
discard_one:
    ch1 = ch2;
```

```
} /* endwhile */
```

```
/* If there was an Esc E, reset at end also */
```

```
if ( foundEscE ) {
    putchar( Esc );
    putchar( 'E' );
} /* endif */
```

```
/* Return to operating system */
```

```
return 0;
```

```
}
```

">>" to append to the file. Alternatively, the output could be redirected to the FOF program using:

```
'| fof'
```

This would avoid the need for temporary files. However, putting the output in a file allows redisplaying or printing of the output without re-executing the script.

Now that the raw, unformatted output is in a file, the FOF program is used to filter out the unwanted text. One more line has been added:

```
'fof <' tempdir || script'.uo'
```

This executes the FOF program, taking input from the unformatted temporary file and sending the output to the standard output device, the screen.

REDISPLAYING AND PRINTING OUTPUT

The script output was saved in a temporary file to allow redisplaying or printing of the output. The REXX command procedure in Figure 3 can be used to create the files for six different commands:

■ FO — redisplay the formatted output;

Figure 2: OS/2 REXX Command Procedure u:\cmd\sqlp.cmd Using UNIX Script Which Executes SQL*Plus for UNIX

```

/* SQLP.CMD */
/* revised to use the FOF formatting program */
parse arg script parms
sqlpath = 'u:\dba\'
file = sqlpath || script'.sql'
if stream(file,'c','query exists') == '' then do
  say script 'is not a valid SQL*Plus script name'
  exit
end /* Do */
tempdir = value('TMP',, 'OS2ENVIRONMENT')
if tempdir \= '' then tempdir = tempdir || '\'
call value 'LAST_SCRIPT', script, 'OS2ENVIRONMENT'
'@echo off'
'echo sqlp.cmd' script parms '>' tempdir || script'.uo'
'rexec yourHostname -l yourUsername -p yourPassword
+ csh /usr/yourUsername/bin/sqlp' script parms
+ '>>' tempdir || script'.uo'
/* change "sqlp" to another UNIX shell script name */
/* to run this file against other Oracle databases */
'fof <' tempdir || script'.uo'
exit

```

Note:

+ indicates a line which is shown as a separate line but should be typed as a continuation of the previous line

- FOM — redisplay the formatted output with "MORE";
- FOP — print the formatted output;
- UO — display the unformatted output;
- UOM — display the unformatted output with "MORE"; and
- UOP — print the unformatted output.

These files can be executed simply by typing the name of the command shown above. By default, they redisplay or print the output of the last script executed. If the name of a script is included after the command name, they show the output from the last time the specified script was executed.

MODIFYING THE SQL*PLUS SCRIPTS

Next, we need to modify the SQL*Plus scripts to control the output. Figure 4 shows the "sysprivs.sql" script (Figure 6 from Part III) with the necessary modifications. The single "echo" line at the beginning of the script has been replaced with:

```

set escape off
set newpage 0
host /bin/echo '\033\033Privs ...'
host /bin/echo '\033\014'

```

The last two commands have been changed from "host echo" to "host /bin/echo" in order to ensure that the binary file "echo" in the "/bin/" directory is used rather than a built-in shell command with the same name. The UNIX "echo" command allows unprintable control characters to be included in the string by specifying the character as an octal constant. The octal constant is coded as a backslash followed by three digits from zero through seven. An octal value of "\033" is the character Escape and "\014" is a Form Feed. The line "set escape off" is included to keep SQL*Plus from treating the backslash as the escape character. One other line has been added near the end of the script:

```
host /bin/echo '\033\033'
```

The first and last host commands contain the Escape-Escape flag "\033\033" to indicate the beginning and end of the report. The second host command contains the Escape-FormFeed flag "\033\014" which tells FOF to suppress all output up to and including the next Form Feed character in the output. The "set newpage 0" command causes SQL*Plus to generate a form feed before each page of the report, including the first page. When processed by the FOF program, the output will be "turned off" by the Escape-FormFeed sequence and "turned on" just after the first SQL*Plus-generated FormFeed.

Figure 5 shows the "roles.sql" script (Figure 7 from Part III) which has been modified in the same manner. Both of these scripts use Escape-Escape, the delimiter intended for screen output. You can try running these scripts separately, or modify USERP.CMD described as follows.

MODIFYING OTHER REXX COMMAND PROCEDURES

If you have created other REXX command procedures, such as USERP.CMD (Figure 9 in Part IV), they will also need to be modified. Figure 6 shows an updated version of USERP.CMD. The output from each script is being filtered by "piping" to the FOF program, using "| fof". Compare Figures 7 and 8 to see the difference between the unformatted output produced by the USERP.CMD from Part IV and the filtered output from this version.

SENDING REPORTS TO A LASER PRINTER

The FOF program is also useful for cleaning up the output of

Figure 3: OS/2 REXX Command Procedures to Redisplay or Print Output

```

/*****
/* Create six command procedures from this figure: */
/*
/* For first three, F*.CMD, use "begcmd = '@fof<' */
/*
/* For FQ.CMD, use "endcmd = ''" (as shown below) */
/* For FOM.CMD, use "endcmd = '|more'" */
/* For FOP.CMD, use "endcmd = '>prn'" */
/*
/* For UO.CMD, use "begcmd = '@type'" */
/* For UOM.CMD, use "begcmd = '@more<'" */
/* For UOP.CMD, use "begcmd = '@print'" */
/*
/* For the last three, U*.CMD, use "endcmd = ''" */
*****/

begcmd = '@fof<'
endcmd = ''

binpath = 'u:\bin\'
sqlpath = 'u:\dba\'

parse arg script parms
if script = '' then do
  script = value('LAST_SCRIPT',, 'OS2ENVIRONMENT')
  if script = '' then do
    say 'Please specify the name of the script'
    exit
  end /* Do */
end /* Do */
tempdir = value('TMP',, 'OS2ENVIRONMENT')
if tempdir \= '' then tempdir = tempdir || '\'
file = tempdir || script'.uo'
if stream(file,'c','query exists') == '' then do
  file = sqlpath || script'.sql'
  if stream(file,'c','query exists') == '' then do
    file = binpath || script
    if stream(file,'c','query exists') == '' then
      say script 'is not a valid script name'
    else
      say 'There is no output from UNIX shell script'
  end
end /* Do */
else
  say 'There is no output from SQL*Plus script' script
end /* Do */
begcmd tempdir || script'.uo' endcmd
exit

```


Figure 4: SQL*Plus Script /util/dba/sysprivs.sql

```
set escape off
set newpage 0
host /bin/echo '\033\033Privs for user name(s) beginning with &1'
host /bin/echo '\033\014'

SELECT grantee "User", privilege "Privilege"
FROM dba_sys_privs
WHERE grantee LIKE UPPER('&1.%')
ORDER BY grantee, privilege;

host /bin/echo '\033\033'

exit
```

Figure 5: SQL*Plus Script /util/dba/roles.sql

```
set escape off
set newpage 0
host /bin/echo '\033\033Roles for user name(s) beginning with &1'
host /bin/echo '\033\014'

SELECT grantee "User", granted_role "Granted Role",
       default_role || ' ' "Default"
FROM dba_role_privs
WHERE grantee LIKE UPPER('&1.%')
ORDER BY grantee, default_role DESC, granted_role;

host /bin/echo '\033\033'

exit
```

Figure 6: OS/2 REXX Command Procedure u:\cmd\userp.cmd

```
/* USERP.CMD */
/* Display roles and privileges for a production user */
/* revised to use the FOF formatting program */
parse arg user rest
'@echo off'
'rexec yourHostname -l yourUsername -p yourPassword
+ csh /usr/yourUsername/bin/sqlp roles' user '|fof'
'rexec yourHostname -l yourUsername -p yourPassword
+ csh /usr/yourUsername/bin/sqlp sysprivs' user '|fof'
```

Note:

+ indicates a line which is shown as a separate line but should be typed as a continuation of the previous line

reports which are to be sent to a printer. When creating SQL*Plus scripts for reports which are to be printed on an HP LaserJet, the beginning and end of the report can be indicated by an Escape-E sequence instead of Escape-Escape. As far as the FOF program is concerned, the two are equivalent, except that the Escape-E is passed through rather than being filtered out. The Escape-E resets the HP LaserJet to make sure the output will not be affected by settings changed by previous users. The command to change the orientation must be coded after the Escape-E since resetting the printer changes the orientation and all other settings back to their defaults.

Figure 9 shows an example of a script "extents.sql" which can produce a printed report listing the number of extents for tables and indexes. The "set linesize" command sets the number of characters per line to 80. The "set pagesize" command sets the number of lines per page to 57. These are the appropriate values for output in portrait orientation at 10 characters per inch and 6 lines per inch.

USING SQL*PLUS "TTITLE"

The example in Figure 9 also shows how the SQL*Plus "ttitle" command can be used to produce slightly more sophisti-

Figure 7: Unformatted Output From u:\cmd\userp.cmd

```
sqlp @roles rsimpson
SQL*Plus: Release 3.1.3.4.1 - Production on Thu Mar 23 20:11:53 1995
Copyright (c) Oracle Corporation 1979, 1994. All rights reserved.
Connected to: Oracle7 Server Release 7.1.3.2.0 - Production Release
With the distributed and parallel query options PL/SQL Release
2.1.3.2.0 - Production
```

Roles for user name(s) beginning with rsimpson

```
old 4: WHERE grantee LIKE UPPER('&1.%')
new 4: WHERE grantee LIKE UPPER('rsimpson%')
```

User	Granted Role	Default
RSIMPSON	CONNECT	YES
RSIMPSON	DBA	YES
RSIMPSON	RESOURCE	YES

```
Disconnected from Oracle7 Server Release 7.1.3.2.0 - Production
Release With the distributed and parallel query options PL/SQL
Release 2.1.3.2.0 - Production
sqlp @sysprivs rsimpson
```

SQL*Plus: Release 3.1.3.4.1 - Production on Thu Mar 23 20:11:56 1995

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Connected to: Oracle7 Server Release 7.1.3.2.0 - Production Release
With the distributed and parallel query options PL/SQL Release
2.1.3.2.0 - Production System privileges for user name(s) beginning
with rsimpson

```
old 3: WHERE grantee LIKE UPPER('&1.%')
new 3: WHERE grantee LIKE UPPER('rsimpson%')
```

GRANTEE	PRIVILEGE
RSIMPSON	UNLIMITED TABLESPACE

```
Disconnected from Oracle7 Server Release 7.1.3.2.0 - Production
Release With the distributed and parallel query options PL/SQL
Release 2.1.3.2.0 - Production
```

Figure 8: Formatted Output From u:\cmd\userp.cmd

Roles for user name(s) beginning with rsimpson

User	Granted Role	Default
RSIMPSON	CONNECT	YES
RSIMPSON	DBA	YES
RSIMPSON	RESOURCE	YES

System privileges for user name(s) beginning with rsimpson

User	Privilege
RSIMPSON	UNLIMITED TABLESPACE

cated headings. The title is centered and is made bold using HP LaserJet Printer Control Language (PCL) commands. Most PCL commands begin with the Escape character. Editors usually provide a special way to enter control characters such as the Escape character. To enter an Escape character in the OS/2 Enhanced Editor (EPM), hold down the Alt key, press 2 then 7 on the numeric keypad, then release the Alt key. The Escape character shows up as an arrow pointing to the left. The PCL commands are documented in the *HP LaserJet User manuals*.

Figure 9: SQL*Plus Script /util/dba/extends.sql

```

set escape off
set linesize 80
set newpage 0
set pagesize 57

column sysdate noprint new_value date_var
column owner noprint new_value owner_var
column "Bytes" format 999,999,999
column "Blocks" format 999,999

ttitle center '<-(s3BExtends for tables owned by &1 and beginning with &2' skip 2 -
left 'Creator: ' owner_var '<-(s0B' right 'Date: ' date_var ' Page:' format 999
SQL.PNO skip 2

host /bin/echo '\033E\033\014'

select sysdate, substr(owner,1,7) "Owner",
substr(segment_name,1,25) "Table Name",
substr.tablespace_name,1,8) "Tsp.Name",
count(*) "#ext.", sum(bytes) "Bytes", sum(blocks) "Blocks"
from dba_extents
where segment_type = 'TABLE'
and owner = upper('&1') and segment_name like upper('%&2.%')
group by owner, segment_name, tablespace_name
order by 5 desc, segment_name;

host /bin/echo '\014\033\033'

ttitle center '<-(s3BExtends for indexes on tables owned by &1 and beginning with &2'
skip 2 - left 'Creator: &1.<-(s0B' right 'Date: ' date_var ' Page:' format 999
SQL.PNO skip 2

host /bin/echo '\033\014'

select sysdate, substr(x.owner,1,7) "Owner",
substr(x.segment_name,1,25) "Index Name",
substr(x.tablespace_name,1,8) "Tsp.Name",
count(*) "#ext.", sum(x.bytes) "Bytes", sum(x.blocks) "Blocks"
from dba_indexes i, dba_extents x
where i.table_owner = upper('&1') and i.table_name like upper('%&2.%')
and x.owner = i.owner and x.segment_name = i.index_name
group by x.owner, x.segment_name, x.tablespace_name
order by 5 desc, x.segment_name;

host /bin/echo '\033E'

exit

```

Note:

"<-" represents the Escape character (ASCII code 27, hex 1B). To enter this character using the Enhanced Editor (EPM), hold down the Alt key, type "2" then "7" on the numeric keypad, then release the Alt key.

Figure 10: SQL*Plus Script /util/dba/synonyms.sql

```

set escape on
set linesize 105
set newpage 0
set pagesize 40

host /bin/echo '\033E\033\0110\033(s3BSynonyms for tables &1..&2\033(s0B'
host /bin/echo '\033\014'

select synonym_name "Synonym Name", substr(owner,1,7) "Owner",
substr(table_owner,1,7) "Tbl Own", table_name "Table Name",
substr(db_link,1,13) "DB Link"
from dba_synonyms
where table_owner = upper('&1') and table_name like upper('%&2.%')
order by synonym_name, owner;

host /bin/echo '\033E'

exit

```

Note:

The pertinent command in the first host command is the HP LaserJet PCL5 command Escape ("033"), ampersand ("&"), lower case letter "l", numeral one ("1"), capital letter "O".

CHANGING THE ORIENTATION

Often, a report will not fit on a page oriented vertically (portrait) but will if the page is printed horizontally (landscape). We could create a UNIX shell script in "/util/bin" called "land" with one line:

```
/bin/echo '\033&l10' | cat - $*
```

"\033" is the "Escape" character, which indicates to an HP LaserJet that a command follows. The next four characters, an ampersand, lower case letter "l", numeral one, and upper case letter "O", is the PCL command to change the page orientation to landscape. The hyphen in the "cat" command tells it to copy the string being piped from the "echo" command before processing the list of files passed in as arguments. The command:

```
bino land myfile > prn
```

will print the UNIX file "myfile" with landscape orientation.

Since output from executing a script comes from SQL*Plus itself, not a UNIX file, a slightly different approach is needed. The PCL command to change the orientation and any other printer commands can be included in the SQL*Plus script. The example in Figure 10, "synonyms.sql", shows how to do this. To prevent the ampersand (&) from being interpreted as the beginning of a substitution variable, it must be preceded by the escape character "<" and "set escape on" must be specified. In addition, all other backslash characters must be replaced by a pair (\\). Therefore the octal constants in the echo commands now appear as "\\033" for the Escape character and "\\014" for FormFeed. With SQL*Plus, the escape character can be changed to another unused character, to avoid this special treatment of the backslash character if desired.

In this example, the linesize is set to 105 characters and the pagesize is set to 40 lines which are the appropriate values for output in landscape orientation at 10 characters per inch and six lines per inch.

ADDING UNIX UTILITIES TO SQL*PLUS SCRIPTS

Figure 11 shows an example of a script, "counts.sql", which uses the UNIX "grep" utility to help filter the output. In this example, all SQL*Plus output is suppressed by including "\\033\014" at the end of the first echo command. Output is turned back on by the line "host /bin/echo '\014'" so that

only the output from the last "grep" command is displayed. In this example, "set pagesize 0" is used to suppress all page breaks, otherwise, the output for each table would appear on a separate page.

BUILDING AN SQL*PLUS SCRIPT

It may occasionally be useful to generate a script containing data from UNIX commands such as "ls". Figure 12 shows a UNIX shell script "allscripts" which executes all of the SQL*Plus scripts in a specific directory. This script could be executed using BINO.CMD (Figure 3 in Part II) and FOF:

```
bino allscripts /util/procs | fof
```

If the scripts in the "/util/procs" directory contained the source for a set of stored procedures, then executing the previous command would recompile all of the procedures. This example shows how the number of backslash ("\") escape characters can get out of hand. Note how four backslash characters are needed in the "/bin/echo" commands. When the script is interpreted by the UNIX shell, each pair of backslash characters will be replaced by a single backslash, reducing the four characters to two. The unquoted "/bin/echo" commands replace every two remaining backslashes with a single backslash, leaving:

```
host /bin/echo '\033\033'
```

in the resulting script. The quoted "/bin/echo" commands interpret each "\033" string as an octal constant, resulting in an Escape character in the output. If "set escape on" was used instead of "set escape off" then SQL*Plus would also treat the "\" in these commands as an escape character and two backslash characters would be needed for each octal constant in the resulting script. Since one backslash character results from every four in "allscripts", backslash characters would need to be coded in groups of eight! When creating scripts like this, it may be necessary to examine and debug the generated script, then modify the shell script to generate a script with the correct syntax.

SECURITY AND PROMPTS

In Part I (*Technical Support*, March 1994), I mentioned that the passwords could be omitted from the REXX command procedures and supplied from the keyboard. Once you start redirecting the output from the "rexec" command to a file or to the "fof" program, this does not work very well because the prompt for the password is also redirected rather than being displayed on the screen. The same problem affects any prompts which require a response from the keyboard. For example, if the database is down, you will have to press return three times to respond to the prompts for the username. If the "exit" is omitted at the end of a script, SQL*Plus will sit and wait at the "SQL>" prompt until you type "exit" and press Enter.

Rather than adding the "fof" program to the REXX command files, you may prefer to use the REXX command procedures from Part III and add the pipe manually, like this:

```
sqlp myscript|fof
```

Another alternative is to keep the SQLP.CMP presented in Part III of this series, which does not redirect the script output, and use that one for testing.

Figure 11: SQL*Plus Script /util/dba/counts.sql

```
set escape off
set pagesize 0

host /bin/echo '\033\033(s3BCounts for tables &1.. &2\033(s0B\033\014'

set heading off
spool tmpcount

select 'select ''' || owner || '.' || table_name ||
''' "Name", count(*) from ' || owner || '.' || table_name || ':'
from all_tables
where owner = upper('&1') and table_name like upper('&2.%')
order by 1;

spool off
column "Name" format a30

host rm tmpcount.sql
host grep -v "4: where" tmpcount.lst>tmpcount.sql

set linesize 75
spool tmpcount
@tmpcount
spool off
set heading on

host /bin/echo '\014'
host grep -v '^$' tmpcount.lst
host /bin/echo '\033E'

exit
```

Figure 12: UNIX Shell Script /util/bin/allscripts

```
/bin/echo "set escape off">tmpallscripts.sql
/bin/echo "host /bin/echo '\033\033'">tmpallscripts.sql
/bin/echo "spool tmpallscripts">tmpallscripts.sql
ls $1/*.sql|awk '{print "@$1"}>tmpallscripts.sql
/bin/echo "spool off">tmpallscripts.sql
/bin/echo "host /bin/echo '\033\033'">tmpallscripts.sql
/bin/echo "exit">tmpallscripts.sql
env ORACLE_HOME=/u/oracle ORACLE_SID=PROD /u/oracle/bin/sqlplus
yourUsername/yourPassword @tmpallscripts
```

WHAT DO YOU THINK?

If you have tried the approach presented here, I hope you have found it to be useful. If so, or if you have found ways to improve on it, please let me know. **ts**

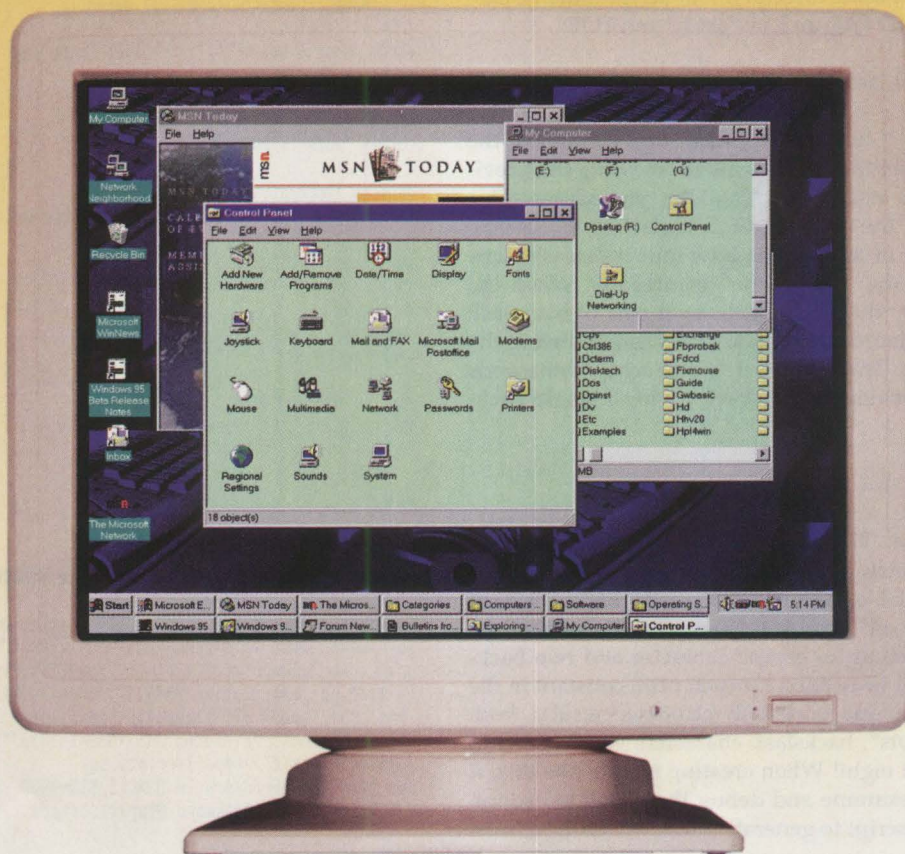
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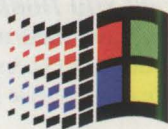
Windows 95

THE GREAT



Windows 95

By Al Shing



I have been using Windows since Windows 3.0 came out in May 1990. Since then, I have upgraded to Windows 3.1 and then Windows for Workgroups 3.1 and Windows for Workgroups 3.11. I was an early tester and adopter of Windows NT 3.1. As a member of the Microsoft Developer's Network, I receive current versions of Windows NT Workstation and beta versions of up and coming versions of Windows, including Windows NT 3.51 and the Windows 95 Preview Release. On a second system I run Windows NT 3.5 Server. This system serves as the domain controller, and a file print and DHCP server.

At the office, I run Windows 3.1, which is currently configured to run TCP/IP and Novell Virtual Loadable Modules (VLMs) on top of ODI drivers on a Token-Ring network. My site is trying to run APPC on this system as

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Mirror, mirror on the wall, who has the fastest, friendliest, most powerful operating system of them all (or at least from Microsoft's and IBM's perspective)?

At this stage of the operating system war, choosing between Windows 95 or OS/2 as a corporate strategy can be a daunting task. Each manufacturer provides compelling justifications for its product, but to really find out how they compare, it is essential to take a look at each from a "hands-on" perspective.

vs. OS/2

T DEBATE



To accomplish this, *Technical Support* turned to two experts, each a seasoned IS professional. Representing the Windows 95 point of view is Al Shing, author of the monthly column, *Opening Windows*, as well as a long-time contributor and technical editor. On the OS/2 side is John Johnston, author of the monthly *OS/2 Insights* column, and also a long-time contributor and technical editor.

Which operating system is better? Is it a matter of personal preference? You be the judge.

— Amy Birschbach, Editor

OS/2 Warp

By John Johnston



I have been using OS/2 for four years. I started working with OS/2 Version 1.3 on my stand-alone desktop system where I dabbled in multitasking programming using assembler language. These early experiments convinced me of the power and potential of OS/2. I have advanced through several releases of OS/2 including Versions 2.0 and 2.1, and now I am running Warp (OS/2 Version 3.0).

At work, my Warp system is connected to a multiplatform, multiprotocol network that provides connectivity to an IBM mainframe, several DEC mini-computers, an RS/6000, an AS/400, and multiple Novell file servers. The network utilizes the following protocols: IPX/SPX, TCP/IP, NetBios, DECNet, and DEC/LAT. OS/2 Version 2.1 is run on the majority of the workstations at the hospital where I work because of its networking and multitasking strengths.

(Continued on page 49)

Several other desktops at our site are still running OS/2 Version 2.1. We are in the process of deciding whether to upgrade all of the PCs to Warp. All of the OS/2 systems in our shop run Communications Manager/2 for host terminal emulation; WordPerfect, Lotus 1-2-3, Microsoft Office, Interconnections for DEC terminal emulation and connectivity; and a variety of hospital-specific DOS and Windows applications. Some of the workstations on our network utilize OS/2 running Communications Manager/2 and Pathworks for OS/2 to access a DEC-based document imaging system. All of the OS/2 workstations are connected to the network using 10BaseT Ethernet cabling to Synoptics concentrators. The site's 10 Ethernet segments are tied together using a WellFleet router, which also connects the Ethernet clients to the small Token-Ring network contained within the confines of the computer room. This ring is used to provide connectivity to the mainframe, AS/400 and RS/6000.

PERFORMANCE

I expect Warp to be as fast as, or faster than Win95 when running DOS and Windows applications. The method OS/2 uses to launch Windows applications causes these applications to take longer to load than on native Windows. However, once the application is loaded, the performance is comparable between OS/2 and Windows. I also expect Warp to be much more stable than Win95. One of the main OS/2 features that we use at the hospital is its ability to multitask Windows applications. When a single Windows application hangs in an OS/2 system, the remainder of the tasks running on that system will continue to operate. Win95 cannot multitask 16-bit Windows applications; all of these programs run in a single address space. Unfortunately, this means that an abend in a single application can stop all of the applications loaded in this address space.

VARIETY OF APPLICATIONS

Native applications continue to be the achilles heel for OS/2. IBM is taking some remarkable PR steps in this area, but there are still relatively few native OS/2 applications. This has not been a concern for me, however. Most of the application software used at the hospital is either DOS- or Windows-based. OS/2 runs all of these applications flawlessly.

IBM is hinting at the possibility of pro-

viding support for Win32 applications. I think that IBM will wait to see the markets reaction to Win-95 before making this a reality.

APPLICATIONS ON THE HORIZON

Several new flavors of Warp are on the horizon, including Warp Connect and Warp Server. Warp Connect will bundle Warp with the drivers and applications to provide connectivity to mainframes, mini-computers and networks. Warp Connect will also provide peer-to-peer LAN services. Warp Server will bundle Warp with several enterprise applications including DB/2, CICS, the VisualAge graphical development tool and the SystemView network manager. Lotus Development is also poised to release a new version of its OS/2 office suite, Smart Suite.

"I think OS/2 will evolve into the platform of choice for corporate America. I predict that Win95 will not be stable enough for IS managers to place their trust."

CONNECTIVITY

Networking is one of OS/2's strong points. When I first started at the hospital the following computer equipment was planted on every nursing station: a mainframe terminal, a mainframe printer, a DEC terminal, a DEC printer, a PC, a PC printer, a Plus/7 (a proprietary hardware and software system) terminal and a Plus/7 printer. Needless to say, there was not much room left on the nursing station for medical equipment. I was charged with replacing all of this computer equipment with a single PC and printer. OS/2 was chosen as the platform of choice because of its networking strengths. However, due to its complexity, setting up multiprotocol networking with OS/2 is not for the timid. The new version of Warp, Warp Connect, promises to ease OS/2's network setup pains.

OS/2 VS. WIN95

I have not personally compared OS/2 to Win95, but I do keep track of the findings of others. OS/2 primary advantages over Win95 are:

■ OS/2 can run in less memory than

Win95; OS/2 is happy with 4 MB of RAM. I have heard that Win95 will require up to 14 MB to perform at acceptable levels.

■ OS/2 is stable. OS/2 has been around for quite a while now and has grown into a stable operating system. Win95 will face the same growing pains OS/2 faced. For example, a major flaw was encountered on the latest beta of Win95. A single 32-bit Windows application can consume all of the resources of a large system. This was caused by one of the Win95 memory allocation components. This component is part of the Win95 architecture and changing it at this late date will, no doubt, create other problems within the operating system. Win95 will require time to stabilize before it can be used for mission-critical applications.

■ OS/2 can multitask 16-bit Windows applications.

■ OS/2 has strong networking capabilities. You can connect an OS/2 workstation to almost any other computing platform you wish, including mainframes, DEC's, AS/400s, NetWare LANs, LAN Manager LANs, the RS/6000 line, and many others.

BENEFITS OF OS/2

Many different organizations and organizational roles could benefit from OS/2. Application developers love OS/2 because of its stability and multitasking. These developers can be compiling a program in one window, editing input data in another session and downloading data from the Internet using another session.

Corporate power users also like OS/2 for the same reasons; OS/2 is particularly useful where mission-critical applications are run. OS/2's stability helps keep these applications accessible. OS/2's strong networking capabilities also allows corporate users to access various computer systems concurrently.

Home users can also benefit from OS/2. The ability to run DOS, Windows and OS/2 programs make OS/2 the operating system of choice for many home users. The Warp productivity aid also provides many utilities that are useful for the home user, including a CompuServe front end and an Internet access program.

FORECASTING THE FUTURE OF OS/2

I think OS/2 will evolve into the platform of choice for corporate America. I predict that Win95 will not be stable enough for IS managers to

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(Windows 95 continued from page 48)

standard OS/2 still has not met. The goal for Win95 is to be compatible with all existing 16-bit Windows and DOS applications, although if a few poorly behaved programs do not run, it will not be a surprise. There are Windows applications that will not run on certain platforms including Windows NT and OS/2.

BENEFITS OF WIN95

Because of the ease of implementing Win95 into Novell, TCP/IP and Microsoft Windows networks, Win95 is a natural for any site that used NetWare or Windows NT servers. Any site that currently uses Windows 3.1 as a standard platform will derive benefits from moving to Win95 because of the improved speed and the new graphical user interface (GUI). It will be easier for new Windows users to learn to use Win95 because some documented impediments for novices have been addressed. Experienced Windows users will benefit from the improved memory management and the increased heap sizes which will result in fewer "out-of-memory" messages. The improved multitasking capabilities will allow more things to be done in a more reliable fashion than was possible with Windows 3.1. These benefits will become more apparent once Win95 versions of programs become available.

Home PC users will benefit from Win95 not only from the improved speed and multitasking, but also from Plug-and-Play and improved multimedia features. A new game development kit for Win95 will allow games to take advantage of the graphical accelerators that have been available for Windows applications but not for traditional DOS games. Games developed for Win95 will be much faster and can take advantage of virtual memory, something that have not been possible in the DOS or 16-bit Windows environments.

FORECASTING THE FUTURE OF WIN95

I fully expect at some point that Win95 and a future version of Windows NT will become one in the same. In 1996, Windows NT will gain the Win95 GUI so that users who need the robustness and security of Windows NT, but want to use the Win95 GUI, can move to Windows NT. If a future release of Windows NT contains all of the Win95 features that are not currently in Windows NT Workstation, such as Plug-and-Play and faxing capabilities, there will be no reason for Win95 users not to move to NT fulltime.

Chronology of Windows

Version	Date	Highlights
1.01	11/85	MS-DOS 2.0, 256 KB memory or greater.
1.03	8/86	MS-DOS 3/2, enhanced keyboard, 14, 18 and 24-point font sizes, Postscript driver, .WRI files.
1.04	4/87	PS/2 support, HP downloadable fonts.
2.03	11/87	Overlapping windows, LIM 4.0, DDE, Smartdrv, new .FON format for screen fonts, mouse acceleration.
2.10	5/88	512 KB memory required, hard disk required for first time; VGA, 8514 support, new HIMEM.SYS using first 64 KB of extended memory for Windows, more printers supported.
2.11	3/89	Improved memory management, updated drivers, bug fixes.
3.0	5/90	640 KB conventional and 256 KB extended memory required; runs in protected mode, 386 enhanced mode, device independent bitmap support, DOS VDMs, new Program Manager, new File Manager, new HIMEM.SYS XMS driver with 16 MB support, EMM386.sys, HP LaserJet III support.
3.00a	10/90	Bug fixes in networking, DDE, low memory conditions, setup and extended character support for printers.
3.00a Multimedia Extensions	Fall 1991	Available to OEMs only, new multimedia device drivers, Media Player, Sound Extensions Recorder, Media Control Interface (MCI), requires Multimedia PC (MPC).
3.10	4/6/92	386 recommended, 2048 KB extended memory recommended for 386s, upgrade package available, improved help, OLE drag and drop, improved File Manager, UNIDriver printer support, 32-bit disk access for WD1003 compatible controllers True Type fonts, multimedia extensions included, new Smartdrive V4.0, HIMEM XMS manager 3.0, new EMM386.EXE, real mode eliminated.
3.11	12/93	Updated drivers, some bug fixes, NetWare support files free for from Internet and CompuServe.
Windows 95 4.00	8/95 Projected	32-bit multithreaded operating system, some real mode components and support for compatibility with 16-bit applications, new user interface, OLE 2.0 support on the desktop, built-in IPX/SPX, TCP/IP, and NetBEUI networking, RAS client and server, built-in PPP and SLIP support, DHCP client, Microsoft Network Online Service software, Plug-and-Play, PCMCIA support, LBA support, long filenames.

As it stands, Win95 will run only on the Intel uniprocessor platforms. To move to a RISC, multiprocessor or a PowerPC platform, it will be necessary to move to Windows NT, since NT already runs on those platforms and Win95 will never run on those platforms. When a future version of Windows NT is released, I suspect there will be many more compelling reasons for Win95 users to make the move.

Does this mean that Win95 has no future? Of course not. Win95 is the uniting of Windows 3.1 and Windows for Workgroups 3.11, providing Windows 3.1 users with the benefits that Windows for Workgroups users have been enjoying for some time now. At the same time, new Windows users will benefit from the upgrade because they will become more productive much sooner with the new GUI. Windows for Workgroups users will benefit from the increased system resources, improved multitasking and

the sheer performance of the system. All will benefit from the new Win95 application that will be released and from the Microsoft Network online service that is being developed in conjunction with Win95. I suspect there will be developments on this front and in other areas in the next two years that will make this a very compelling upgrade for Windows users. **ts**

NaSPA member Al Shing has more than 21 years computing experience, specializing in operating systems programming and support. He is experienced in supporting PC, open systems and large system environments. He can be reached through NaSCOM ID Shinalbk or Internet ID shinalbk@nascom.com.

Chronology of OS/2

Version	Date	Highlights
1.0 (CP DOS)	12/87	Required 80286 or higher with 3 MB memory minimum; supported 32 MB drives; used 64 KB segments; offered multitasking, multithreading, and DOS-compatibility box; interface was character-mode only.
1.1 (Trimaran)	11/88	Presentation Manager GUI; new Graphics Engine.
1.2 (Sloop)	10/89	Installable File System (IFS) and new High Performance File System (HPFS); added support for more PCs and devices; could handle 4 GB drives and 2 GB files with 2 TB total drive capacity.
OS/2 1.3 (Cutter)	12/90	Required 2 MB memory minimum;
2.0 (Cruiser)	4/92	Required 80386 processor or higher and 4 MB minimum memory; Multiple Virtual DOS Machines (MVDM) replaced DOS box; added Win-OS/2 3.0.; added support for 32-bit programming model, virtual memory, 4 GB memory segments, new user interface, and the Workplace Shell; included online tutorial, online help, online documentation, a new installation program and applets.
XR06055 ServicePak for OS/2 2.0	11/92	Bug fixes and new 32-bit GPI, 32-bit Windows, OS/2 display drivers, and new print drivers.
2.1 (Borg)	5/93	New CD-ROM drivers, more SCSI drivers, printer drivers, and PCMCIA drivers; included WIN-OS/2 3.1, MMPM/2, pen support, a 32-bit GPI, and new applets.
XR06100 ServicePak for OS/2 2.0	10/93	Included OS/2 2.1-level bug fixes, new display and printer drivers.
2.1 for Windows (Ferengi)	11/93	Removed Win-OS/2 3.1 from OS/2 2.1; added new drivers for S3 displays.
XR06200 ServicePak for OS/2 2.1	2/94	Bug fixes and new drivers for OS/2 2.1.
4XR06300 ServicePak for Windows	4/94	Included bug fixes, new drivers; was OS/2 2.1 essentially the same as XR06200.
OS/2 for SMP	6/94	Supported multiple-processor systems and assigned multithreaded applications across servers.
3.0 (Warp)	10/94	Requires less memory than 2.1 (4 MB RAM); compatible with Windows 3.11 and Windows for Workgroups 3.11; includes new 32-bit printer drivers, new audio, display, and PCMCIA drivers; new DSOM object model, new tutorial, several Workplace Shell improvements; improved applets in Bonus Pak.

(OS/2 Warp continued from page 49)

place their trust. In fact, Microsoft has already been hinting that corporations should consider Windows NT for mission-critical applications rather than pushing Win95. Warp Connect will be available by the time this article is printed and I believe that many corporate accounts will look seriously at this flavor of OS/2.

The PowerPC could cause quite a stir in corporate America and OS/2 is currently being ported to this platform. (See the article, "Is There a Power PC in Your Future," *PC Systems & Support*, November, 1994.)

Choosing between OS/2 and Win95 as a corporate strategy is a daunting task at this stage of the OS war. Many software vendors do not support their applications when running under the OS/2 DOS and Windows boxes. Choosing OS/2 as a

desktop operating system means that you must be willing to hack at some applications to make them work. Win95 may be full of unknown surprises. I would also be concerned with the possibility of Microsoft positioning NT as the corporate desktop operating system of choice, making your decision to convert to Windows 95 questionable. I predict that we will soon re-visit the OS/2 vs. Windows NT battle. **ts**

NaSPA member John E. Johnston is manager of technical support and communications for a major hospital in Pennsylvania. He designs and maintains cross-platform local and wide area networks utilizing NetWare, OS/2, DOS and Windows. John can be reached via NaSCOM ID Johnjohe or CompuServe ID 73473,2146.

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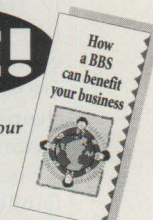
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PMQSIZE Fix

BY JOHN E. JOHNSTON

I have been using Warp for about two months now and until recently was experiencing occasional system lockups. These lockups usually occurred when running several memory-intensive applications concurrently. While scanning through CompuServe in search for a fix, I ran across a thread describing a patch for OS/2 created by Brent Noorda, an OS/2 shareware author. Brent created the shareware product CEnv, which provides an interpreter for a scripting language known as Cmm (C minus minus) which is almost identical to the "C" syntax. CEnv provides the power and flexibility of the C language without the need for a full-blown compiler. The patch that Brent created, PM Queue Size Patch, addresses desktop hangs and invalid switching between the desktop and Windows/DOS sessions. I applied the patch on my system and my system hangs have "almost" completely been eliminated.

The theory behind the PM Queue Size Patch, as explained in the documentation that came with the fix, is as follows: OS/2 has a message queue where messages to and from Presentation Manager (PM) threads are stored until the thread can process them. This queue can only hold 10 messages. When more than 10 messages need to be stored in the queue, it is reasonable to assume system problems will occur. Brent's fix increases this queue size to up to 255 entries. This patch can be applied to Warp and OS/2 2.11 systems.

OBTAINING THE PATCH

The PM Queue Size patch can be obtained via CompuServe. Download file PMQSIZ.ZIP from library 4 of the OS2USER forum. The developer of the patch also includes a couple of utilities that can be used to display information about the PM windows on your system and the queues they use. These utilities require that CEnv be installed on your system. You can install and use the patch without the CEnv product, but you will not be able to use these monitoring utilities. A Shareware program, CEnv, can also be downloaded from library 4 of the OS2USER CompuServe forum, file CENV12.ZIP.

INSTALLING THE PATCH

After unzipping PMQSIZ.ZIP you will find several files, including a documentation file. This documentation file explains how to implement the fix in

Since this patch was not created by IBM, IBM will not support it or take any problem calls from users with this patch installed.

I am sure that IBM is looking very hard at this patch, and will most likely implement it in a standard IBM patch later in the year.

Warp and version 2.11 systems. The command to implement the fix on Warp systems follows:

```
PMQSIZE C:\OS2\DLL\PMWIN.DLL 190
```

This command will set the PM queue size to 190. You can specify a number

up to 255 in this command. The Warp implementation of the PMQSIZE patch does not alter any programs on your hard drive; it modifies the program image in memory instead. Brent recommends that this command be placed in the STARTUP.CMD file so that it executes each time the system is restarted. Note: The OS/2 2.11 implementation of the patch does alter the binary file on your hard drive. Make sure you read the instructions that came with the patch.

MONITORING THE PATCH

To see if the patch was actually applied, and to monitor the queue usage of your applications, you must first install the CEnv product. The quickest way to implement CEnv and to monitor the patch follows:

1. Download CENV12.ZIP from CompuServe.
2. Unzip CENV12.ZIP into a directory, such as C:\CENV12.
3. The unzip command will place a file named CENV12.ZIP in your directory. Unzip CENV12.ZIP into the CENV12 directory.
4. Change directories to CENV12 and enter CENV12. This will invoke the CEnv installation program and leave you in the CEnv environment. Type EXIT to get out of the interpreter.

OS Who?

A few weeks ago I was searching for an OS/2 communications program that supports the Novell NASI interface. I am currently using a very nice DOS-based, NASI-compliant communications program, so I started a thread on that vendor's CompuServe forum asking if they had an OS/2 version of the product. The response I received was priceless:

"Our marketing research team has performed an intensive study of the OS/2 market and has determined that there is no market for OS/2 software, and we wish that everyone would stop asking for OS/2 versions of our products."

Figure 1: WINQLIST Output

Process	ID	Queue	Size	Desktop Windows	Object Windows
PMSHELL	12	12C2CA34	100	17	9
PMSHELL	20	12C28338	100	38	8
PMSHELL	20	12C1F08C	100	2	1
EPWMP	19	12C271E4	10	6	4
E	29	12C1E648	10	10	7
PMSHELL	20	12C23F30	10	0	1
PMSHELL	20	12C2468C	10	0	1
PMSHELL	20	12C25078	10	0	1
PMSHELL	20	12C25374	10	0	1
PMSHELL	20	12C25864	100	0	2
PMSHELL	20	12C2808C	10	0	2
PMSPool	18	12C27ABC	10	0	1
PMSPool	18	12C27D10	10	0	1
PMSPool	18	12C29174	10	0	1
PMSHELL	12	12C294D4	10	0	2
PMSHELL	12	12C2B6FC	10	0	12
PMSHELL	12	12C2B10C	10	0	9
PMSHELL	12	12C2B360	1	0	1
PMSHELL	12	12C2B494	1	0	1
PMSHELL	12	12C2B5C8	1	0	1
PMSHELL	12	12C2BA2C	1	0	1

5. Copy the WINQLIST.CMD file, which came with the PMQSIZ.ZIP file, to your CENVIOS2 directory.

6. Edit WINQLIST.CMD and change the first line from CENVI to CENVI2:

```
EXTPROC CEnvi to EXTPROC CEnvi2
```

7. Start the "E" editor and leave it running.

8. From an OS/2 session, change directories to CENVIOS2. Enter WINQLIST. You should see a list of PM threads and their queue usage. Look for the E program and it should have the default queue size of 10 as shown in Figure 1.

9. Apply the patch using the PMQSIZE command as explained earlier.

10. Stop, then restart the "E" editor.

11. Re-issue the WINQLIST command. The "E" editor session should now have a queue size that matches the parameter that you specified on the patch.

NO IBM SUPPORT

This patch has made my Warp system more stable and has done the same for many others. Since this patch was not created by IBM, IBM will not support it or take any problem calls from users with this patch installed. I am sure that IBM is looking very hard at this patch and will most likely implement it in a standard IBM patch later in the year.

If you have any questions, comments or ideas for future topics for this column, feel free to contact me via CompuServe 73473,2146. **ts**

Was this column of value to you? If so, please circle Reader Response Card No. 45.

NaSPA member John E. Johnston is manager of technical support and communications for a major hospital in Pennsylvania. He designs and maintains cross-platform local and wide area networks utilizing NetWare, OS/2, DOS and Windows. John can be reached via NaSCOM ID Johnjohe or CompuServe ID 73473,2146.

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